

PRECLUDING FACTORS ASSESSMENT FOR ITRC PVI SEPARATION DISTANCES

Site Name*: _____ Completed by: _____ Date: _____

The following checklist will assist in documenting if there are conditions present that preclude use of the ITRC PVI separation distances:

CSM SUPPORTS	ADDITIONAL INFO NEEDED	PRECLUDING FACTORS ASSESSMENT
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	Depth to groundwater contamination is greater than 5 feet from bottom of building foundation based on the unrestricted SSTL [Sec. 3.3]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	Depth to NAPL (including residual NAPL) is greater than 15 feet from bottom of building foundation [Sec. 3.3]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	Vadose zone between PVI source and bottom of the building foundation is not contaminated by NAPL or secondary vapor sources and conditions for aerobic biodegradation exist. [Sec. 2.2; 3.1.6]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No natural preferential pathways intercept both the source and building foundation [Sec. 3.1.4; Fig 3-2]: -No karst geology between the source and building foundation -No fractured bedrock between the source and building foundation -No other fractured geology between the source and building foundation
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No artificial or engineered preferential pathways intercept both the source and building foundation [Sec. 3.1.4; Fig. 3-2]: -No utility conduits (e.g., sanitary sewers, piping corridors) that intercept the source and building with improper seals and connections to buildings
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No ongoing releases of petroleum products [Sec. 3.1.4]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No expanding or advancing dissolved plume [Sec 3.1.4; Fig.3-2]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No migrating NAPL [Sec. 3.1.4; Fig. 3-2]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No presence of lead scavengers [e.g., Ethylene dibromide (EDB), Ethylene dichloride (EDC), 1,2-dichloroethane (1,2-DCA)] above the unrestricted SSTL [Sec. 3.1.4; Fig. 3-2]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No gasoline release containing greater than 10% vol/vol ethanol [Sec. 3.1.4; Fig. 3-2]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No soils with a naturally high content of organic matter between the source and building foundation [Sec. 3.1.4; Fig.3-2]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No presence or likely presence of chlorinated organic compounds above an unrestricted SSTL [Sec. 1.1; 4.2.1]
Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	No presence or likely presence of recalcitrant compounds (Table 1) above an unrestricted SSTL [Sec. 1.1]

The CSM must support that no precluding factors are present for the PVI separation distances to be applicable. Appendix D of 2014, ITRC PVI-1 can provide additional guidance.

***Checklist must be included in the site file as part of the administrative record to support the decision**

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Table 1: Petroleum Hazardous Substances that are Considered to be Recalcitrant

CAS #	Hazardous Substance	Recalcitrant
75-65-0	t-Butyl alcohol	X
110-82-7	Cyclohexane	X
60-29-7	Diethyl ether	X
108-20-3	Diisopropyl ether	X
64-17-5	Ethanol	X
637-92-3	Ethyl-tert-butyl ether (ETBE)	X
142-82-5	n-Heptane	X
98-82-8	Isopropyl benzene	X
96-37-7	Methylcyclopentane	X
994-05-8	t-Amyl methyl ether	X
540-84-1	2,2,4-Trimethyl pentane	X

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The following conditions are identified in the ITRC PVI Guidance documents as conditions that when present are precluding factors in the PVI screening application. - Figure 3-2, Page 20

Step 1 - Develop Preliminary CSM for site screening:

- Determine the location and lateral and vertical extent of the petroleum vapor source
 - The presence of LNAPL should be assumed where there is a known release of petroleum and the area of residual NAPL must be sufficiently defined – Sec. 3.1.2
- Determine the presence of precluding factors
 - Preferential pathways (natural and anthropogenic)
 - Expanding or advancing plume
 - Fuel types
 - Soil types
- Determine lateral inclusion zone
- Determine the distance between the bottom of the building foundation (includes footers) and the top of the petroleum vapor source

Step 2 – Evaluate building for precluding factors & lateral inclusion

Are precluding factors present?

- Depth to groundwater contamination is not sufficient to allow 5 feet from bottom of building foundation (including footers)
- LNAPL contamination depth is not sufficient to allow 15 feet from bottom of building foundation (including footers) [Note: Table 3-1 LNAPL Indicators for PVI screening]
- Vadose zone between PVI source and bottom of building foundation is contaminated or aerobic conditions are not present between the PVI source and bottom of the building foundation
- Preferential pathways (natural, artificial or engineered) intercept both the source (either NAPL or dissolved plume) and the building foundation (includes footers) [The source material need not be in contact with the building foundation to pose a risk]
 - Karst geology
 - Fractured bedrock – Figure 3-4
 - Other fractured geology
 - Utility conduits (e.g., sanitary sewers, piping corridors) with improper seals and connections to a building [There is a significantly greater risk of PVI from utilities located within LNAPL zones than there is with dissolved groundwater plumes] – Figure 3-3
- Ongoing releases of petroleum products that result in expanding or mobile migration plumes that will not allow the lateral inclusion zone to be identified
- Certain fuel types
 - Gasoline containing lead scavengers [e.g., Ethylene dibromide (EDB), Ethylene dichloride (EDC), 1,2-dichloroethane (1,2-DCA)]
 - Gasoline containing greater than 10% vol/vol ethanol
- Soils with a naturally high content of organic matter between the source and building foundation

If no precluding factors are identified, evaluate whether current or future buildings are located within the lateral inclusion zone. If buildings are located within the lateral inclusion zone, continue to Step 3. Buildings outside the lateral inclusion zone require no further PVI evaluation

Step 3 – Conduct screening with vertical separation distances - Does the building screen out based on the appropriate situation?

- The presence of contaminants other than the petroleum hydrocarbons
 - Chlorinated volatile organic compounds